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REMARKS

The courtesy of the telephone interview granted by the Examiner, is appreciated.

During the interview, the Examiner indicated tentatively that the amendment to Claim 1 (which also applies to Claim 24) of eliminating the term "said golf club" and substituting "a golf club" would overcome the Section 112 rejection. Also during the interview, the foregoing amendment to Claim 1 to recite a size greater than a softball rather than a baseball as originally claimed, was discussed in relation to the rejection of Claim 1 under Section 102, which applies as well to the dependent claims rejected under Section 103. In this regard, the Official Action uses the United States Golf Association specification for the size of a golf ball as anticipating the baseball size. Claim 1 has now been amended to the object being at least the size of a softball. The Official Action states that the USGA specification for a golf ball is that it may have a diameter of at least 1.68 inches or more. It is true that The Rules of Golf of the USGA defines the size of a golf ball as "The diameter of the golf ball shall not be less than 1.680 inches (42.67mm)." (Appendix III, paragraph 2, copy enclosed), but that by itself is not a teaching, disclosure or suggestion of any prior art golf ball being of any size other than 1.680 inches.

The object of golf is to use the least number of strokes in playing a round, which is facilitated by being able to hit the ball as far as possible, and the smaller the ball, other factors being equal, the farther the ball will go. The reason for the rule limiting how small a golf ball can be is to provide a standard so that no one is able to gain an advantage by using a ball of a smaller size that travels a greater distance. Obviously, the teaching is to have a golf ball as close to 1.680 inches in diameter as possible so that the greatest travel distance will be attainable. Certainly, it would be contrary to the teachings of golf ball prior art to increase the size appreciably to the order of the presently claimed size of a softball or greater. There is no prior

art cited or known to applicant disclosing, teaching or suggesting a golf ball having a diameter greater than 1.72 inches, which is only 0.02 inches larger than the minimum allowed.

As stated in the below-identified publications, copies of which are enclosed, a standard minimum diameter for a golf ball was established to prevent smaller balls from being used as smaller balls, not larger balls, were an advantage. If all balls were the same size, no one would be able to have an advantage by using a smaller ball. At one time, the required golf ball diameter was 1.62 inches, which was later increased to a "big ball" size of the present 1.68 inches.

In Chapter Two Evolution & Innovation of The Illustrated Encyclopedia of Golf there is the following reference on page 25 to the "feathery" ball used in the 17th and early 18th Century:

It weighed about the same as the modern ball (that is, 1.62 ounces) and was usually a similar size, though in those days there was no uniform diameter.

On pages 26 and 27, it is stated:

In 1920 they [R&A and USGA] agreed the ball should weigh no more than 1.62 ounces and have a diameter of not less than 1.62 inches, a radical move since until then there had been no restrictions whatsoever, although the earlier enforcement of a 4-1/4-inch hole obviously ruled out ridiculously large spheres. Both bodies pledged to "take whatever steps they think necessary to limit the powers of the ball with regard to distance should any ball of greater power be introduced."

But from January 1931, the USGA turned its back on collective responsibility and opted for independence. The "big ball" was introduced, having a minimum size of 1.68 inches and a maximum weight of 1.55 ounces. A year later the weight stipulation was raised to 1.62 ounces and that remains the position.

and on page 28 it is stated:

In January 1993, Spalding announced the launch of its Magna ball. It has a diameter of 1.72 inches. (Remember the current regulations only stipulate a *minimum* diameter of 1.68 inches.) In addition to the manufacturers' claim that the ball supplies the average golfer with distance, accuracy and feel, its greater size also means less spin - which should mean that it slices and hooks less than a conventional ball!

And in the Chapter entitled The PGA European Tour of The Illustrated Encyclopedia of Golf, page 132 it is stated:

In 1968 the British PGA, heeding those who considered the 1.68-inch ball to be a factor behind America's supremacy in professional golf, announced that the big ball would be compulsory in all its tournaments for a three-year experimental period. This controversial decision heralded the beginning of the end of the 1.62-inch ball for professionals (though it was permitted in the Open until 1974) and initiated the process by which all club golfers in Britain today play with the big ball.

In Golf in America, Chapter Two The USGA Champions the Game, page 33, it is stated:

Since the beginning, golf balls had come in differing sizes and weights. In the gutta-percha days, Harry Vardon played with a ball 1.7 inches in diameter, and some early wound balls had been 1.71 inches and 1.72 ounces. Anybody could do anything with a ball; no rules applied. Before an R&A medal tournament played during a raging October gale in the nineteenth century, Maitland Dougal, one of the club's better golfers, drilled a hole in his gutta-percha ball, stuffed it with buckshot to hold it low in the wind, slogged around in 112 and finished second.

Manufacturers had been producing balls that flew farther and farther, and courses were playing shorter and shorter. Attempting to control distance, the USGA and the Royal and Ancient acted together in 1921 and set uniform standards. The ball could weigh no more than 1.62 ounces and measure no less than 1.62 inches in diameter. The agreement lasted ten years, until the USGA broke once more with the R&A, lowered the approved weight to 1.55 ounces and increased the size to 1.68 inches. The new ball was a failure. It was so light the wind tossed it about in flight, and a putted ball quickly lost momentum and would not hold its line. The weight was increased to 1.62 ounces again in 1932, but the diameter remained at 1.68 inches. It has stayed constant ever since, and within the last fifteen years has become the standard size ball throughout the world. The Royal and Ancient announced in 1987 that the old 1.62-inch ball no longer could be played in its championships, and would be phased out completely in 1990.

In Chapter Eight From Hickory Cleeks to Metal Woods of Golf in America, page 186 and 187, it is stated:

The original wound-rubber balls were light and large, about 1.55 ounces and 1.71 inches in diameter. No regulations governed ball size and weight, so manufacturers tried various combinations looking for the longest, straightest flight. A heavier core was popular for a time, then both size and weight

dropped, so in 1915, when Haskell's original patent expired, 1.62 ounces and 1.63 inches in diameter were roughly standard.

Once the patent ended, competitors mushroomed. Just as development of the gutta-percha ball threatened courses, so did the wide variety of rubber balls suddenly available. In 1920, the United States Golf Association (USGA) and the Royal and Ancient (R&A) Golf Club of St. Andrews, Scotland, the two recognized governing bodies of golf, jointly agreed on ball-size restrictions. As of May 1, 1921, balls used in their competitions could no longer weigh more than 1.62 ounces or measure less than 1.62 inches.

Over the next decade, the USGA experimented with different limits. In 1923, the association stated that a ball could weigh no more than 1.55 ounces while measuring no less than 1.68 inches. This "balloon ball" came into play in the United States in 1931, but proved too light to hold a line while in flight or on the green; it was gone after one year. The new rules in 1932 read 1.62 ounces and 1.68 inches, standards that still apply today. The British held to the original 1.62/1.62 all along, but as America came to dominate the game, the smaller ball fell out of favor.

The reference in these articles to a ball of a diameter of 1.72 inches being a "Magna ball," and a ball of 1.71 inches being "large," and that the specified 1.68 inch ball is a "big ball" and a "balloon ball," is a disclosure, teaching and suggestion that the largest prior art golf ball was of a diameter of 1.72 inches, not the size of a softball, which falls in the range of 4 to 6 inches.

For the foregoing reasons, it is respectfully submitted that the prior art does not anticipate nor render obvious Claim 1 and all of the claims that depend from Claim 1, namely Claims 2-22 (Claims 7-10 were indicated as containing allowable subject matter in the Official Action).

As to the dependent claims, Claims 4, 6, 14, 15, 16 recite that the weight of the object is approximately 4 to 12 ounces (Claim 4), 6 to 7 ounces (Claim 6), 1 to 12 pounds (Claim 14), 6 pounds (Claims 15 and 16). According to paragraph 1 of Appendix III (copy attached) of The Rules of Golf "The weight of the ball shall not be greater than 1.620 ounces avoirdupois (49.93gm)." Clearly, this limited size cannot anticipate or render obvious these claims that

specify weights that are from 2-1/2 to 10 times or more the maximum weight allowed for a golf ball.

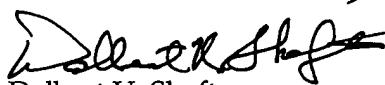
As withdrawn Claims 2-6 and 11-17 all depend from Claim 1, it is respectfully submitted that the requirement for election resulting in the withdrawal of these claims is no longer apt, and these claims should be reinstated and allowed for the same reason as Claim 1, from which they all depend, and for the reasons stated in the preceding paragraph.

Independent Claim 23 was rejected as being anticipated under Section 102, but none of the art cited teaches or suggests securing the object for stopping a golf clubhead in an impact position. In rejecting Claim 22 under Section 103, the Official Action cites Miles U.S. Patent No. 708,573 for a disclosure of securing the object. If it is intended that the Miles patent is to be cited against Claim 23, it should be noted that the Miles patent teaches that "The ball is free to move and to turn in all directions (column 2, lines 61 and 62). There is absolutely no teaching in Miles of securing an object so that it will stop a golf clubhead in an impact position, as claimed. For this reason, it is respectfully submitted that Claim 23 is allowable.

For the foregoing reasons, it is respectfully submitted that Claims 1, 3, 4 and 6-23 are allowable, and reconsideration and allowance are respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Respectfully submitted,



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Typed Name: Wendy Pullen

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

Claim 1 has been amended as follows:

1. (Twice Amended) A golf practice and exercise device for use with a golf club, comprising a frame member having a base portion for supporting the device on a floor or ground, said frame member extending upwardly from the base member and having an outwardly extending mounting arm, and an object swingably suspended from said mounting arm with at least a portion of said object adjacent the floor or ground in position to be struck by a golf clubhead during a normal swing of ~~said a~~ golf club, said object having a golf clubhead impact surface of a size at least that of the corresponding surface of a ~~baseball~~ softball to provide a large target so that the golfer can swing ~~said a~~ golf club freely without concentration on striking the small target of a golf ball, said object being of a mass at least that of a ~~baseball~~ softball to provide substantial resistance to the impact of a golf club to impose muscular strain on the golfer for muscle development but being limited in mass to allow the head of ~~the a~~ golf club to swing the object sufficiently for the golf clubhead to ultimately pass under the object and allow the golfer to complete the follow-through of the golf swing.

Claim 2 has been canceled.

4. (Amended) A golf practice and exercise device according to claim 2 3 in which said object weighs approximately 4 to 12 ounces.

Claim 5 has been canceled.

Claim 24 has been amended as follows:

24. (Twice Amended) A golf practice and exercise device for use with a golf club, comprising an object resting on the ground or floor in position for being struck by a golf

clubhead during a normal swing of ~~said a~~ golf club, said object having a golf clubhead impact surface of a size at least that of the corresponding surface of a softball to provide a large target so that the golfer can swing ~~said~~ the golf club freely without concentration on striking the small target of a golf ball, said object being of a mass at least that of a softball to provide substantial resistance to the impact of a golf club to impose muscular strain on the golfer for muscle development but being limited in mass to allow the head of ~~the~~ a golf club to move the object sufficiently to allow the golfer to complete the follow-through of the golf swing, and a flexible cord secured to said object and to the ground or floor to limit the distance said object can move after it has been struck.

Claims 25 and 26 have been canceled.



The Rules of Golf 2000–01

*and the Rules of Amateur Status
Includes quadrennial revisions to the Rules*

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**THE
RULES
OF
GOLF**

as approved by
THE UNITED STATES GOLF ASSOCIATION®
and
**THE ROYAL AND ANCIENT GOLF CLUB
OF ST. ANDREWS, SCOTLAND**

Effective January 1, 2000

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App. II 0.168 inches (4.27 mm), measured from center to center.
/ III

d. Decorative Markings

The center of the impact area may be indicated by a design within the boundary of a square whose sides are 0.375 inches (9.53 mm) in length. Such a design must not unduly influence the movement of the ball. Decorative markings are permitted outside the impact area.

e. Non-metallic Club Face Markings

The above specifications apply to clubs on which the impact area of the face is of metal or a material of similar hardness. They do not apply to clubs with faces made of other materials and whose loft angle is 24 degrees or less, but markings which could unduly influence the movement of the ball are prohibited. Clubs with this type of face and a loft angle exceeding 24 degrees may have grooves of maximum width 0.040 inches (1.02 mm) and maximum depth 1½ times the groove width, but must otherwise conform to the markings specifications above.

f. Putter Face

The specifications above with regard to roughness, material and markings in the impact area do not apply to putters.

APPENDIX III The Ball

1. Weight

The weight of the ball shall not be greater than 1.620 ounces avoirdupois (45.93 gm).

2. Size

The diameter of the ball shall not be less than 1.680 inches (42.67mm). This specification will be satisfied if, under its own weight, a ball falls through a 1.680 inches diameter ring gauge in fewer than 25 out of 100 randomly selected positions, the test being carried out at a temperature of $23 \pm 1^\circ\text{C}$.

3. Spherical Symmetry

The ball must not be modified to have proportionally symmetrical ball.

4. Initial Velocity

The initial velocity of the ball (test on file) when measured by the United States Golf Association

5. Overall Distance

The combined carry and roll distance approved by the United States Golf Association must not exceed the distance specified in the Overall Distance Standard of the United States Golf Association.

RULES OF GOLF

Any person who cons
take might endanger
lars to the United States

Definition of an Amateur
An amateur golfer is a
nervative or non-profit-

Rule 1. For

The following are examples of the Definition of an amateur status:

- 1. Professionalism**
 - Receiving payment for professional services as a golfer or identical services as a golfer.
 - Taking any action to assist a golfer.

The ILLUSTRATED ENCYCLOPEDIA of

GOLF



ROBERT GREEN

Foreword by SEVERIANO BALLESTEROS

AMATEURS • WOMEN'S CHAMPIONSHIPS • ARCHITECTS • CLASSIC COURSES •

The ILLUSTRATED ENCYCLOPEDIA of

GOLF

ROBERT GREEN

Foreword by

SEVERIANO BALLESTEROS



796.352
Green, Robert, 1953-
The illustrated encyclopedia
of golf



CollinsWillow
An Imprint of HarperCollinsPublishers

CHAPTER TWO

EVOLUTION & INNOVATION

Golf is intrinsically the same pastime it was centuries ago but there have been major changes to the way we play it. Some of these developments may be regrettable – like the six-hour round and the proliferation of golf carts – but most have added to our enjoyment of the game.

First, consider the fundamental implements of golf – the ball and the club. It is axiomatic, given the facts outlined in the previous chapter, that there are earlier references to the clubs and balls of golf – or *colf* – in the Low Countries than in Scotland. There are several 15th-century references to both club- and ball-makers in Holland, and records show that the Scots imported balls from across the North Sea, literally by the barrel-load, as long ago as 1486.

The Dutch *colfers* originally played with wooden balls, generally of elm or beech, which had negligible aerodynamic properties. They gradually adopted a ball made of white leather and filled with cow's hair, which was used in the local game of *kaatsen* (hand tennis). It is possible that it was the *kaatsen* ball that inspired the Scots to invent the feathery sometime in the 17th or early 18th century as a substitute for the wooden ball which was probably the popular ball of the day.

The feathery consisted of a leather casing, usually bull's hide, soaked in alum and crammed with goose feathers which had been softened by boiling. This was then knocked into shape (round, of course!) and painted white to make it more visible and more resistant to the elements. On drying it became tighter and firmer. It weighed about the same as the modern ball (that is, 1.62 ounces) and was usually a similar size, though in those days there was no uniform diameter.

The feathery had two diverse effects. First the good news. Whereas the cumbersome wooden ball could seldom be propelled more than 100 yards, distances of twice that and more were regularly achieved with the feathery.

Samuel Messieux, a Swiss schoolteacher based at St Andrews, boomed a measured drive of 361 yards over the Old Course in 1836. Conditions were slightly favourable

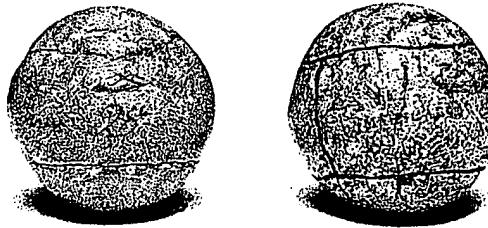
– a frosty ground and a helping breeze – but the prodigious blow emphasized the qualities of the feathery. In wet weather, when it became rather soggy, its advantage over the wooden ball was not so marked. It is worth noting that the very act of stitching up the finished product inadvertently assisted its flight because the seams fulfilled a similar, if cruder, role to that played by the dimples which help the modern ball get airborne.

But the feathery had a downside, too. It made golf far too expensive for the ordinary man. One feathery cost twelve times the price of the old boxwood ball and, astonishingly, about the same as a wooden club. Even the most skilled craftsman struggled to produce more than four a day, which accounted for its apparently exorbitant price, and the average player may have used that many balls a round due to the feathery's tendency to split or get too damp. It could also, of course, in the time-honoured manner, be lost.

The less wealthy no doubt had to make do with wooden balls for decades after the coming of the feathery, and it is from this era that golf's image as a rich man's preserve still lingers. In Scotland it has managed to retain a name as a game for the common man, even though that has not always been the case. But from the moment that the Stuart kings took the game south to England with them, golf has always been exported with a designer label. The introduction of the gutta percha ball in 1848 may not have eradicated golf's snobby reputation but it did an enormous amount to restore it as a genuinely popular game.

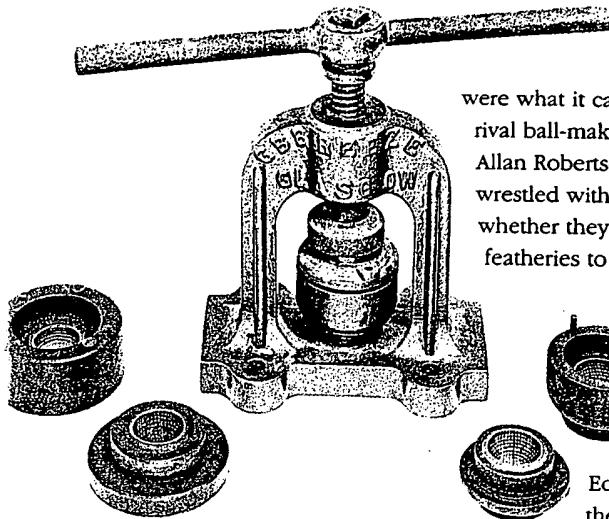
Gutta percha is like sap, a gum which can be tapped from trees indigenous to Malaya. The substance is malleable when boiled in water and becomes hard on cooling.

There are mixed accounts as to how gutta percha came to find its niche in golf,



BALLS OF A FEATHER Two early examples of the basic feathery ball: one by Allan Robertson (above, left) circa 1840; the other by D. Marshall, 1830.

VANITY PAIR Mirror, mirror on the wall, who has the fairest swing of all? Nick Faldo and David Leadbetter work on getting the right image (opposite).

**THE WAY THEY WERE**

This rudimentary implement is a golf-ball mould from late in the last century.

WELL STUFFED *To make a feathery ball, manufacturers would fill a top hat with feathers, usually from a goose although chicken feathers were also suitable.*



but there is no disputing that disputes were what it caused in the 1850s as rival ball-makers like the Gourlays, Allan Robertson and Old Tom Morris wrestled with their consciences as to whether they should switch from featheries to gutties. Eventually they did, though not without intermittent acrimony. The Honourable Company of Edinburgh Golfers made the great transition for its Silver Club competition in

1865. With that, the last feathery had flown.

Its demise was not so much due to the greater distance that could be attained with the gutty as the difference in cost. Because the process involved in the manufacture of the latter was a great deal simpler, it was approximately a quarter of the price of a feathery. At a shilling a ball, with clubs at 3s 6d (17½p) each and the highest subscription in the land standing at three guineas (£3.15), this was the age when golf in Britain became more of a game for everyone. The increased leisure time created by the prosperity of the Industrial Revolution was another vital ingredient that enabled the sport to catch the imagination of the nation.

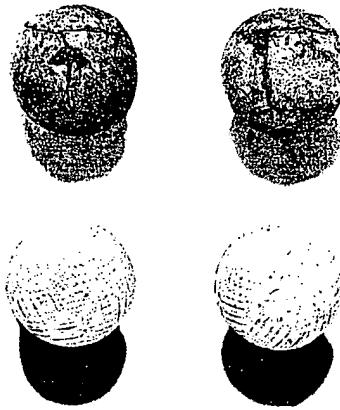
The gutty could be remoulded if badly damaged, which was just as well since in the early days it was prone to break up in mid-air, thus forcing the rules to accommodate this tendency by allowing the golfer to play a fresh ball from the point where the largest fragment had come to rest. This would be by no means the last occasion on which the Rules of Golf had to be amended to legislate for the properties of the golf ball. For the remainder of the 19th century, the new ball was repeatedly modified to make it more durable, and its outer shell was indented with a hammer after it was observed that

the ball flew better when it had been cut or marked than when in its smooth, pristine state.

As quickly as the gutty came on to the scene, it was superseded. In 1901, the rubber-cored ball made its British debut. It was the invention of the fledgling American golf equipment industry. The idea belonged to Coburn Haskell, an employee of the Goodrich Tyre and Rubber Company in Ohio. Elastic thread was wound around a rubber core under extreme tension and then encased in a patterned outer cover of gutta percha. Although there were a few initial teething troubles not unlike those that beset the gutty, it had the inestimable advantage of covering a reasonable amount of ground when mishit, whereas the less lively gutty went nowhere and left a stinging sensation in the fingers if tipped.

The Haskell ball was dubbed as being only fit for hackers by the great Harry Vardon – largely, one suspects, because he could see that it would scupper the prospects of the Vardon Flyer, a Spalding-made gutty ball he had launched in America on a mammoth promotional tour in 1900 – and derided by others as a 'Bounding Billy' that would ruin the finer arts of shot-making. If the ostriches could not see that a ball capable of compensating for a mishit was a gift from heaven to most golfers, in 1902 they were shown what a difference it made to the best players when Sandy Herd played four rounds at Royal Liverpool in 307 to beat Vardon and James Braid by a shot for the Open. Herd used the same ball for all 72 holes. It was a Haskell, and he was the only man in the field to play with one. Goodbye gutty.

From that moment, the Haskell ball has been improved to such effect that it has spawned a host of dicta from the R & A and USGA, the dual arbiters of the integrity of the sport. In 1920 they agreed the ball should weigh no more than 1.62 ounces and have a diameter of not less than 1.62 inches, a radical move since until then there had been no restrictions whatsoever, although the earlier enforcement of a 4 ¼-inch hole obviously ruled out ridiculously large spheres. Both bodies pledged to "take whatever steps they think necessary to limit the powers of the ball with regard to distance should any ball of greater power be introduced".



But from January 1931, the USGA turned its back on collective responsibility and opted for independence. The 'big ball' was introduced, having a minimum size of 1.68 inches and a maximum weight of 1.55 ounces. A year later the weight stipulation was raised to 1.62 ounces and that remains the position.

The idea behind the big ball had been to provide "an easier and pleasanter ball for the average golfer" but, as with Haskell's invention, the big ball was soon perceived to be better for professionals as well. It sat up more invitingly on America's predominantly parkland courses (unlike the smaller ball, which had evolved in the windy conditions and tight lies prevalent in British links golf) and was easier to chip and putt well with – all benefits for the club player. However, it was also less forgiving of bad shots. American professionals therefore had to improve their striking technique in order to master the big ball.

In 1951, the USGA rejected a proposal, advanced by a special committee of its own and R & A members, that each ball should ordinarily be legal on both sides of the Atlantic, though they agreed to the suggestion for players in international team competitions. Subsequent attempts to settle for a uniform ball, perhaps of 1.66 inches, failed, but the American belief in the supremacy of their ball has since been justified. The Professional Golfers' Association (PGA) in Great Britain, swayed by the persuasive voices of those who attributed the American dominance of golf to their employment of the big ball, announced in 1968 that it was to experiment with the 1.68-inch version in its



MOULDY OLDIES *The two boxes (left) contain a selection of gutty balls, while the four individual ones (featured far left) are two feathery (to the left) and two hand-hammered balls (to the right)*

tournaments. Soon it was mandatory. In 1974, the R & A made the big ball compulsory for the Open Championship. Under the rules revisions that came into effect in 1988, the R & A outlawed the small ball altogether.

In still more recent times, the ball has – literally – gone from strength to strength. The original gutta percha shell of the Haskell has given way to new and refined compounds; as a rough guide, balata for the pros and good amateurs, surlyn (a chemical compound) for the rest of us. Millions have been spent researching the properties of various formations of dimples. Winding has got tighter. Wound (three-piece) balls now compete with solid balls for their share of the market, though the solid ball of today is far removed from the solid wooden ball of the past. It is a two-piece composition which is particularly suitable for club golfers.

In the modern era, that pledge of 1920 has become meaningful. The young lions, or gorillas, of professional tournament golf hit the ball so far that many experts are worried that hundreds of the world's best courses are in danger of becoming obsolete. The imposition of velocity and distance standards have not stopped players like John Daly (OK, there's no one else quite like John Daly, but he is just the lord of a legion of long-hitters) reaching 500-yard-plus holes with a drive and a sand wedge.

RANGE OF BALLS *Golf ball advertisements (right) were crammed affairs around the turn of the century. Notice that the Vardon Flyer is included in this one.*

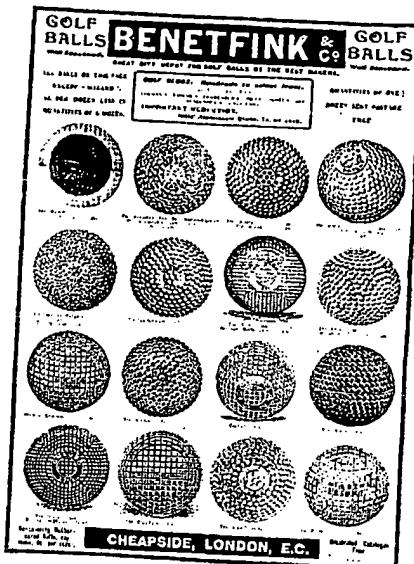
This sort of hitting, though more powerful and prevalent among contemporary golfers, is not an entirely new phenomenon. Back in 1966, Henry Longhurst, the famous writer and broadcaster, recognizing that excessive distance is only undesirable when given to professionals and is actually the biggest boon of all for mere mortals, advocated "*a special and shorter 'tournament ball' for 'them' and another, the present one, for 'us'.*"

That is a cry frequently echoed nowadays, but talk of a standard tournament ball is invariably resisted by the players and manufacturers. And distance isn't the only potential issue. A few years ago, the USGA banned the no-hook, no-slice Polara ball because it was considered to undermine the integrity of the game. The inventors engaged the USGA in bitter and expensive court proceedings which cost the governing body millions of dollars, but the prohibition was upheld. However, the marketing men and the scientists haven't given up. In January 1993, Spalding announced the launch of its Magna ball. It has a diameter of 1.72 inches. (Remember, the current regulations only stipulate a *minimum* diameter of 1.68 inches.) In addition to the manufacturers' claim that the ball



THE PIONEER Harry Vardon's action and grip (above) now look classical, but in his day they were unorthodox.

THE PULVERIZER
John Daly is the biggest hitter in contemporary tournament golf, using modern equipment such as the driver shown here.



supplies the average golfer with distance, accuracy and feel, its greater size also means less spin – which should mean that it slices and hooks less than a conventional ball!

Ball manufacturing today is big business indeed, far removed from the age when Allan Robertson was stitching up his featheries and muttering darkly about the gutty. What would he have made of today's day-glo pink, yellow and orange golf balls?

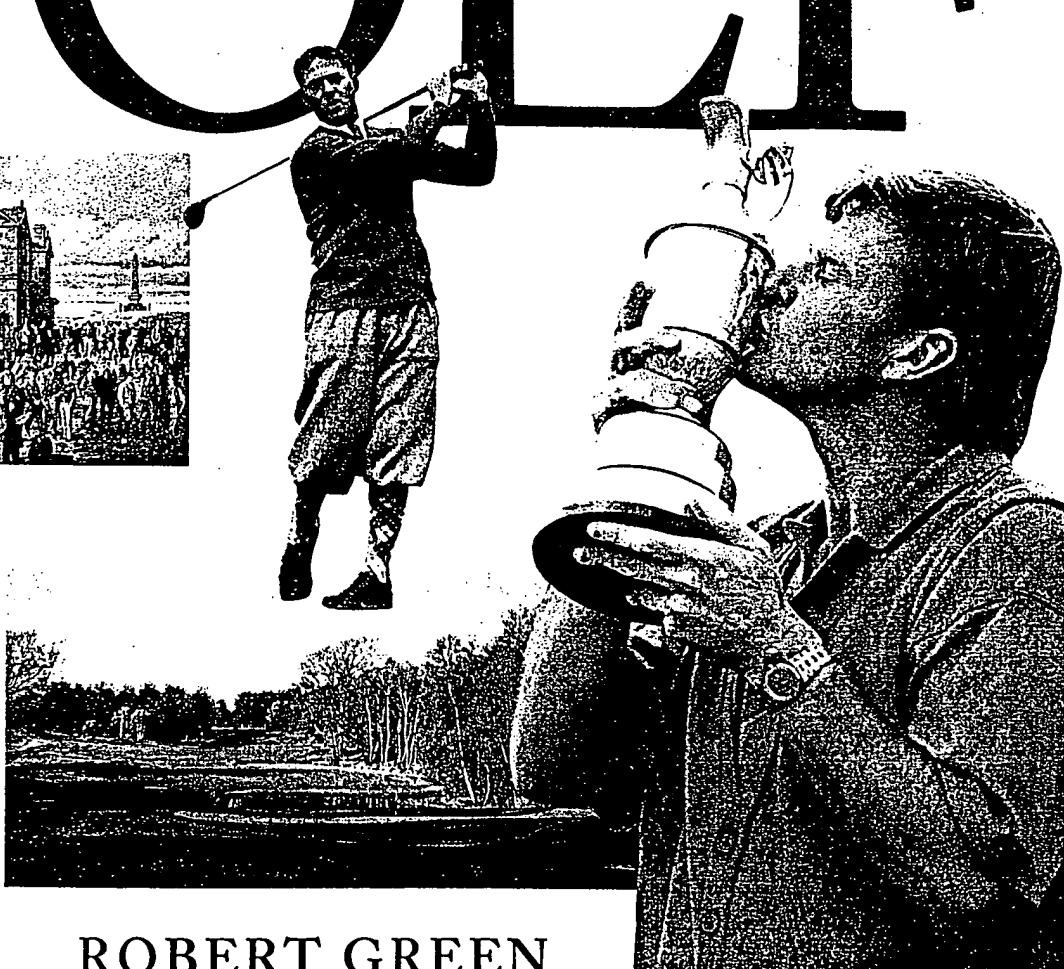
The mass production of the ball throughout this century has brought golf within the pocket and reach of millions of people all over the world, and the improvement in its playing characteristics has perhaps been the single largest factor in enhancing our enjoyment of the game. But a better ball would not be much use without better clubs with which to hit it.

It is man's primeval instinct to hit something with a stick. Clubs in all sports have been adapted for their specific purpose from this basic principle. Neither the Dutch nor the Scots can claim to have invented this innate desire, though the Scots can produce proof to show that they supplied wooden clubs to Holland around 1650.

Club-making came into its own with the advent of the feathery. Clubs no longer had to withstand the impact of striking a solid wooden ball, and artistry was given a free reign. Exquisite wooden clubs were fashioned from ash, thorn, apple and pearwood. The emphasis was on woods because irons would have inflicted untold damage on the delicate feathery. They

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GOLF



ROBERT GREEN

Foreword by SEVERIANO BALLESTEROS

AMATEURS • WOMEN'S CHAMPIONSHIPS • ARCHITECTS • CLASSIC COURSES •

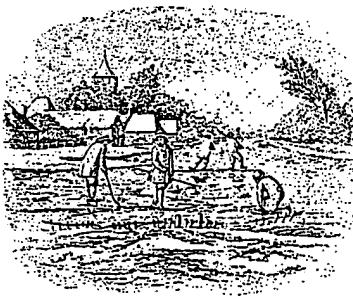
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THE PGA EUROPEAN TOUR



EUROPE'S EXTENDER Ken Schofield has supervised an astonishing growth in the European tour, not least because of his policy of taking the tour out of Europe.



SEVEN UP In 1947 Norman von Nida won a record seven tournaments in England. Dick Burton, who won the Open at St Andrews in 1939 is under the umbrella.

adeira. Dubai. Singapore. Tenerife. Morocco. Sounds an exotic itinerary, but those destinations don't sound like what they actually were.

Those places – one in the Middle East, one in the Far East, one in Africa and the other two Atlantic islands that are nearer Africa than Europe – were the first five stops on the 1993 PGA European Tour. There's also talk of South Africa for the future.

These days, the tour might more appropriately be named the International Tour, with a motto of 'Have clubs, will travel – anywhere'. The pioneers of aviation didn't manage to shrink the globe as much as Ken Schofield has since he took over as the European tour supremo in 1975 and inherited a schedule of 17 tournaments and official prize-money of around £500,000. By 1993, he had converted the equivalent statistics to over 40 official and tour-approved tournaments with prize-money of some £24 million.

The multi-ethnic circuit the modern European tour has become could hardly have been envisaged in the 1930s as British professionals – Henry Cotton excepted, of course – were reluctantly coming to terms with the unpalatable truth that they were a poor second best to the Americans.

The British and Continental tours used to be separate entities. The latter was basically a string of national Opens throughout mainland Europe; the former was operated by the British PGA which, as in the United States, existed primarily for the benefit of club professionals. The tour, such as it was, originally consisted of something like a tournament a month. The Vardon Trophy, named after Harry Vardon and awarded to the season's leading money-winner for topping the Order of Merit (the slightly quaint European term for Money List), was not instituted until 1937, when it was claimed by Charlie Whitcombe.

In the post-war years British golf was dominated by Commonwealth players like Bobby Locke and Peter Thomson, who almost shared the Open Championship between them. Another Australian, Norman von Nida,

won a record seven tournaments, all in England, in 1947. That mark has never been bettered, but in 1953 a Belgian, Flory van Donck, matched it with seven wins in six countries, including five continental Opens.

In 1958, Peter Alliss won the Italian, Spanish and Portuguese Opens in consecutive weeks on one particularly fruitful excursion. Alliss, who is now famous throughout the world as a television commentator, was one of a group of touring British professionals of high, but not the highest, calibre. He, Eric Brown, Bernard Hunt, Dai Rees, Christy O'Connor, Neil Coles and others all made a good living from their travels, but the gulf between the British players and the cream of American golf was distressingly emphasized every two years when the latter would customarily thrash their opponents in the Ryder Cup. The absence of the Open Championship trophy from a British mantelpiece from 1951 to 1969 was a further manifestation of the truth that the tournament circuit in Britain and Europe was merely a pale shadow of the one across the Atlantic.

Then, much as in America, three things happened. In America, these were television, President Eisenhower and Arnold Palmer. In Europe, they were the big ball, Tony Jacklin and John Jacobs.

In 1968 the British PGA, heeding those who considered the 1.68-inch ball to be a factor behind America's supremacy in professional golf, announced that the big ball would be compulsory in all its tournaments for a three-year experimental period. This controversial decision heralded the beginning of the end of the 1.62-inch ball for professionals (though it was permitted in the Open until 1974) and initiated the process by which all club golfers in Britain today play with the big ball.

The chances of the ruling being revoked were reduced within 18 months when Tony Jacklin won the 1969 Open at Lytham (ironically, with the small ball) and within another 12 months they had vanished altogether in the wake of Jacklin's massacre of the Americans in their own national championship (this

time with the big one). British golf had its king, and time was ripe to capitalize on his success.

In 1971, John Jacobs was appointed Tournament Director-General of the PGA, relieving the then secretary, Major John Bywaters, of a massive chunk of his colossal workload. Jacobs was brought in to make the tour side more business-like, and that he did, proving himself to be as astute an administrator as he was capable professional and is esteemed teacher.

He did not have an easy baptism. Three major sponsors had pulled out after the 1970 season, including Players following the fiasco mentioned in the introduction to this chapter. The continental tournaments suddenly looked extremely attractive, and six of them – the Algarve, Spanish, Italian, French, German and Swiss Opens – counted for the Ryder Cup points table and the Order of Merit in 1971 by guaranteeing a minimum purse of £10,000, more money than any other event then organized under the auspices of the PGA.

It was into this cold climate that Jacobs stepped. He shuffled the schedule so that the richest tournaments were allocated the best dates, and during those weeks he prohibited his star players from competing outside Europe. He co-ordinated the continental Opens as part of his package and stipulated minimum prize funds for Order of Merit events, which lost him some sponsors but gained others (even John Player again, until the company expensively discovered that Turnberry can be about as suitable as the Arctic for the staging of a golf tournament in the autumn).

Jacobs set himself a target of £200,000 in total prize money for 1972. He doubled that, a spectacular vindication of his insistence on not having to answer to a committee and financial evidence of the drawing power of Jacklin and Peter Oosterhuis. The latter, a huge gangling man of 6'5", collected the Vardon Trophy in four successive seasons from 1971. He then left Britain for America.

Oosterhuis had led the Masters by three shots after three rounds in 1973 and was to finish only a shot adrift of Tom Watson in the 1982 Open at Troon, but he was only to win once in 12 years of arduous campaigning on the US tour, proof positive of how relatively easy it was then to excel in Europe compared



RETURN OF THE NATIVE
Along with Tony Jacklin, Peter Oosterhuis was Europe's other top-class golfer in the early 1970s. He topped the Order of Merit for four straight years – including 1972, when this picture was taken – before leaving to pursue his competitive career in America. Lately, he has been attempting a comeback in Europe, and why not? The Senior tour awaits him in 1998.

to the United States. Oosterhuis later took a series of club jobs, latterly at the prestigious Riviera Country Club in Los Angeles, before restarting a career of competitive play in Europe once again, on the eve of his 45th birthday, at a tournament in Italy in April 1993. He missed the cut. His total money-winnings of £32,127 in 1974 were less than the cheque New Zealand's Greg Turner pocketed for being runner-up, 19 years on, that week in Rome. Times indeed change, just as it waits for no man.

The year Oosterhuis departed from British shores also saw the creation of a separate Tournament Players' Division within the PGA (an idea copied from the United States) and the departure of Jacobs from the hot seat. Ken Schofield replaced him and the subsequent increase in the prosperity of the tour has been inexorable.

Schofield would readily admit that he was assisted enormously in his initial endeavours by the exploits of Severiano Ballesteros. These two men were the second wave of the revolution.

Ballesteros was a virtual unknown when he

The First One Hundred Years

GOLF IN AMERICA

By George Peper and

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Chapter TWO The USGA

Within three years after St. Andrew's was formed, other clubs were springing up simultaneously and independently in other parts of the country. William K. Vanderbilt and some associates formed Shinnecock Hills in Southampton, New York, after watching the young Scottish professional Willie Dunn at the French resort of Biarritz. Florence Boit, a young woman who had learned to play in Pau, in the French Pyrénées, introduced the game to influential Bostonians. At the same time, Charles Blair Macdonald was awakening the Midwest. Macdonald had learned the game as a student at St. Andrews University in Scotland and had known both Old Tom and Young Tom Morris, David Strath, Jimmy Anderson, Andrew Kirkaldy, and Bob Martin, all but Strath British Open champions. In the early 1890s, Macdonald helped organize the Chicago Golf Club.

At about the same time, golf was introduced to Newport, Rhode Island. Tuxedo Park, New York, and Meadow Brook, on Long Island, had nine-hole courses by 1893, and clubs were organizing in Philadelphia, Baltimore, and Washington. Each club conducted tournaments and other affairs independently, and inevitably two clubs became rivals.

At its roots, golf is a competitive game, and at their roots, Americans are a competitive people. Since it seemed important to find the nation's best players, both Newport and St. Andrew's arranged to hold national amateur championships. On a windy morning in September 1894, twenty men set out from the first tee at Newport in a stroke-play tournament, but they were a sorry lot of mostly novice golfers. As their scores mounted at a terrifying rate they began dropping out, sometimes one by one, often in whole lots. When the day ended, eight men had survived the thirty-six holes—four turns around a crude nine-hole course—and only three of those



America's first clubhouse, Shinnecock Hills in Southampton, New York, was designed by Stanford White in 1892. The club hosted the second U.S. Open in 1896 and the eighty-sixth in 1986.

had scored under 200. William G. Lawrence, a Newport member, shot 188 and beat Macdonald by a stroke.

Macdonald was annoyed. He considered himself the best golfer in America and felt he would have won except for a shot that settled close to one of the stone walls running through the course, an improper hazard in his view. No matter—he had a chance to redeem himself a month later at St. Andrew's in a match-play tournament, which Macdonald considered a more proper method of determining a champion. Twenty-eight men entered. Once again, Macdonald was in the thick of it, but again he was not good enough, losing to Laurence B. Stoddard, a St. Andrew's member.

The two tournaments settled nothing, but they caused enough controversy to convince two powerful and persuasive

BY CARSON CODD

champions the Game

men that the game needed a central authority. Disturbed at a situation he perceived as anarchy, Lawrence Curtis, who had influenced a frugal board of governors to spend fifty dollars for nine holes at The Country Club in Brookline, Massachusetts, spoke to Henry O. Tallmadge, one of the five men who had organized St. Andrew's. They agreed Tallmadge should invite representatives of various clubs to form a central body with the authority to conduct national championships and otherwise further the interests of the game.

On December 22, 1894, over dinner at the Calumet Club, on the corner of Fifth Avenue and Twenty-ninth Street in New York City, men representing St. Andrew's, Newport, Shinnecock Hills, The Country Club, and the Chicago Golf Club created the United States Golf Association (USGA). Theodore A. Havemeyer of Newport was its first president. For nearly a century, the USGA has been the bond that has held the game together.

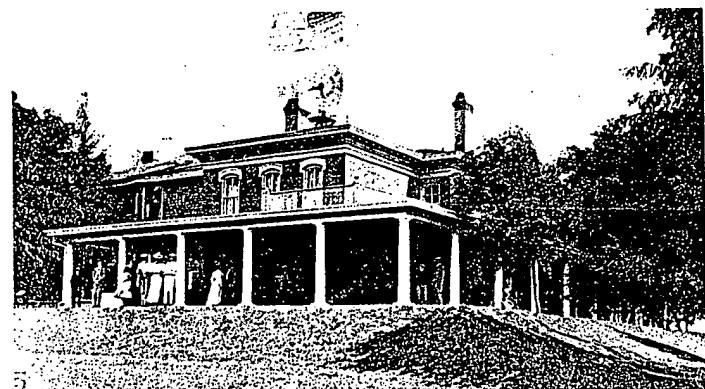
The association's original aims were to establish and enforce uniformity in the rules of play, to establish a uniform system of handicapping, to establish its executive committee as a court of reference and final authority in matters of controversy, and above all "to decide on what links the Amateur and Open Championships shall be played."

It was easy in the early years. From 1895 through 1897, both championships were played at the same time and over the same course. The U.S. Amateur covered three days of match play the first year and, as the fields grew, took four the next two. The U.S. Open, then only thirty-six holes, was played in one day. The USGA took the first Amateur and Open Championships under its aegis to the Newport Golf Club, a nine-hole course that bordered the Atlantic Ocean. Frustrated in those first two amateur championships, Mac-

donald finally broke through. In bright, clear, but blustery weather, he won five matches, the closest by 5 and 3, and set a record score for the final that still stands, defeating Charles Sands of St. Andrew's, a man who had only recently taken up the game, by 12 and 11.

For a variety of reasons, Macdonald's winning the Amateur was considered more significant than Horace Rawlins's winning the Open, played the day after the Amateur final. The Amateur was for sportsmen, men who played the game primarily for the fun of it, whereas the Open was primarily for professionals, acknowledged as the better golfers but belonging in another, lower social stratum. Professionals were usually a rough, crude band, mostly from Britain, who spoke dialects difficult to understand, laced with vulgar, back-alley expressions, and they drank, sometimes heavily.

Although he tried many more times, Macdonald never won again. Indeed, he never again advanced beyond the



Chicago Golf Club, one of the five charter members of the USGA and site of the first eighteen-hole course in America. The club was founded, and the course designed, by Charles Blair Macdonald.

Other factors were at work. The wound-rubber ball had replaced the old gutta-percha ball in the first years of the century, and by 1910 a patent had been taken on the steel shaft. Both were to have enormous effects. The new ball flew farther, made scoring easier, and, therefore, made the game more enjoyable to play. With steel shafts, clubs could be mass-produced in large factories cheaper, quicker, and in more quantity than the original wooden shafts, which often were shaped by hand.

In spite of these obvious benefits—perhaps because of them—steel shafts were not accepted immediately. The USGA held off approving them on courses until 1926, the Royal and Ancient until 1929. This was the second split between the USGA and the R&A over equipment. In another matter, though, they acted together.

Since the beginning, golf balls had come in differing sizes and weights. In the gutta-percha days, Harry Vardon played with a ball 1.7 inches in diameter, and some early wound balls had been 1.71 inches and 1.72 ounces. Anybody could do anything with a ball; no rules applied. Before an R&A medal tournament played during a raging October gale in the nineteenth century, Maitland Dougal, one of the club's better golfers, drilled a hole in his gutta-percha ball, stuffed it with buckshot to hold it low in the wind, slogged around in 112 and finished second.

Manufacturers had been producing balls that flew farther and farther, and courses were playing shorter and shorter. Attempting to control distance, the USGA and the Royal and Ancient acted together in 1921 and set uniform standards. The ball could weigh no more than 1.62 ounces and measure no less than 1.62 inches in diameter. The agreement lasted ten years, until the USGA broke once more with the R&A, lowered the approved weight to 1.55 ounces and increased the size to 1.68 inches. The new ball was a failure. It was so light the wind tossed it about in flight, and a putted

Opposite, above left:

Charles E. ("Chick") Evans, Jr., in 1916 became the first player to win both the U.S. Amateur and the U.S. Open in the same year. Only Bobby Jones would duplicate the feat.

Opposite, above right:

Even as a fourteen-year-old boy in his first U.S. Amateur, Bobby Jones showed the form and demeanor of a champion.

Opposite, below:

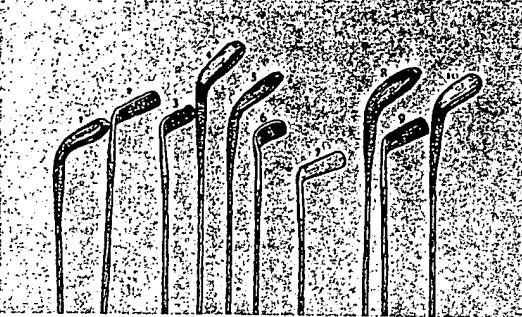
The clubhouse at The Country Club, site of the U.S. Open in 1913, 1963, and 1988. It was one of the five charter members of the USGA and the scene of Francis Ouimet's momentous upset of Harry Vardon and Ted Ray in 1913.

ball quickly lost momentum and would not hold its line. The weight was increased to 1.62 ounces again in 1932, but the diameter remained at 1.68 inches. It has stayed constant ever since, and within the last fifteen years has become the standard size ball throughout the world. The Royal and Ancient announced in 1987 that the old 1.62-inch ball no longer could be played in its championships, and would be phased out completely in 1990.

During this next decade of change and expansion, the master of the game was an amateur—Robert Tyre ("Bobby") Jones, Jr., a young Georgian with a fluid, flowing swing, a charming manner, and an unconquerable will to win. From 1923 through 1930, he set standards that have never been approached. In those eight seasons, he won four U.S. Opens, three British Opens, five U.S. Amateurs, and one British Amateur. Through the same period he finished second in four other Opens, twice losing playoffs, and lost in the final of one U.S. Amateur (he also went to the 1919 final). He retired from competitive golf in November 1930 after winning the U.S. and British Opens and the U.S. and British Amateurs in the same year, the most compelling accomplishment the game has ever known. He was so much better than anyone else that Bobby Cruickshank, an old friend and rival, sent \$500 to his father-in-law in Britain to place a bet with a bookmaker at 120-1 odds that Jones would win all four. Cruickshank collected \$60,000.

Nothing was easy, though; Jones struggled for every championship he won. Perhaps his first Open was the most exhausting. With one hole to play at the Inwood Country Club, across Jamaica Bay from where New York's John F. Kennedy Airport stands today, Jones had the Open in his hand. Needing only a bogey five to win, he pulled a 3-wood onto the tee of another hole, played a tentative pitch into a bunker, and made 6. Cruickshank, an immigrant Scot who had fought in World War I, tied him. Jones redeemed himself the next day for what he considered a cowardly finish by playing one of the most memorable shots in the game's lore—a 190-yard mid-iron from a sandy lie in the right rough, across a pond set tight against the front of the green, to within six feet of the hole. Cruickshank, meanwhile, was making 6. This was Jones's first national championship; he would win thirteen.

Jones ruled at a time when Americans surpassed the British as the world's best golfers. The inaugural Walker Cup Match was played in 1922, and in the thirty-one matches played through 1987, the United States has won twenty-eight, lost two, and halved one. Four years after the first match, Jess Sweetser, a member of the American Walker Cup team, became the first native-born American to win the British



Chapter EIGHT

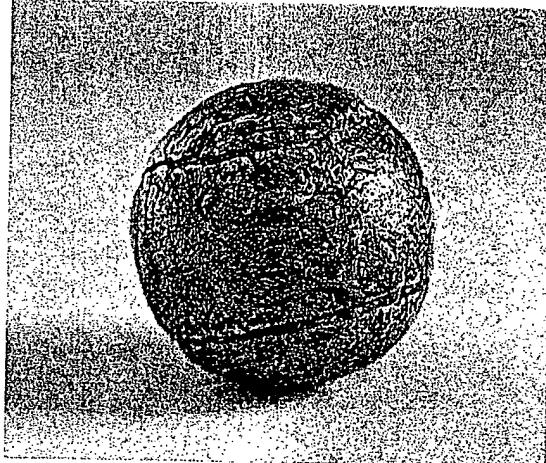
Fron t

Before John Reid and friends could play their pioneering game of golf on Washington's Birthday, 1888, they had to have the necessary equipment. Because golf was virtually nonexistent in America at the time, the paraphernalia had to be imported. It came, of course, from Scotland. The "Old Grey Town" of St. Andrews was not only the cradle of golf, it was the crucible of golf equipment.

Reid obviously had been planning this golf outing for some time, for he had requested a fellow Scot, Robert Lockhart, a linen merchant, to bring back clubs and balls from a trip he was making home in 1887. In St. Andrews, Lockhart purchased six clubs—a driver, a brassie (equivalent to a 2-wood), spoon (3-wood), cleek (long iron), sand iron, and putter—and two dozen gutta-percha balls from the shop of Old Tom Morris, a leading clubmaker (or cleekmaker, as they were called) and a four-time winner of the British Open.

The clubs and balls had been handmade in Morris's shop. Although the Industrial Revolution had begun more than 125 years before, golf equipment in 1887 was crafted by hand, as it had been for four centuries. Within a decade, fueled in large part by the acceptance and subsequent growth of the game in America, the manufacture of golf equipment would leave the shop and move into the factory.

The story of golf equipment begins in the fifteenth century with the feather-filled ball. The "feathery" was constructed from strips of leather, two to four per ball, stitched together to form a pouch, soaked in water and alum, then tightly stuffed with goose or chicken feathers. As the ball dried, the feathers expanded and the leather contracted, forming a pellet that remained playable until it split, usually from wetness or from a bladed iron shot.



The feathery was a durable product until it got wet or was hit clumsily with an iron, when it would split open. Each ball was stuffed by hand with a top-hat full of feathers; a good worker could turn out three or four a day.

The clubs of the feathery period had long, thin, shallow heads and were formed of hard woods such as thorn and apple. Shafts were commonly made of ash and wrapped at the end with soft sheepskin, forming a grip. Iron clubs were rare because they tended to damage, rather than propel, the ball.

Around 1848, featheries were replaced by balls made of gutta percha, a rubberlike sap imported from India into Britain. The gutta revolutionized the game: they were easier to make, less expensive, lasted longer, flew farther and rolled truer on the greens. These improvements brought many new players to the game. Because the ball flew farther, holes had to be longer, and because there were more players, courses had to be roomier and have more holes.

Hickory Cleeks Metal Woods

BY
JAMES A.
FRANK

The harder, more resilient gutta-percha ball also brought about changes in clubs. Wooden heads became shorter and squatter and were constructed of slightly softer woods such as beech, sometimes with leather inserts in the face. Hickory shafts replaced ash. Irons, used only as a last resort to extricate the feathery from wheel ruts and other hazards, became more popular. The gutta-percha ball withstood contact with irons, and players like Young Tom Morris (son of the clubmaker and himself the winner of four successive British Open titles) quickly exploited the new metal clubs.

Golfers began to notice that the nicks and scratches the irons made in the surface of the ball actually improved its aerodynamic performance. Soon, balls were hammered deliberately, causing patterns to appear. Metal molds formed (and reformed) gutta percha, increased and standardized construction, and patterns were scored directly into the molds.

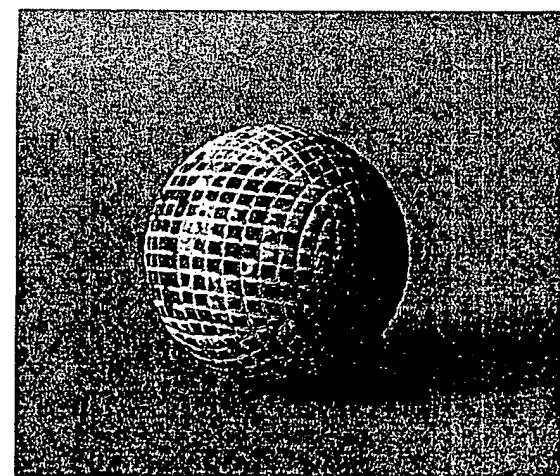
In the 1880s, clubmaking was a skilled profession in Scotland. Wooden heads were cut from blocks, filed and formed, then treated with a mixture of oil and varnish. By the 1890s, clubmakers were experimenting with inserts and "bulge," a slight convex shaping of the clubface that made for straighter shots.

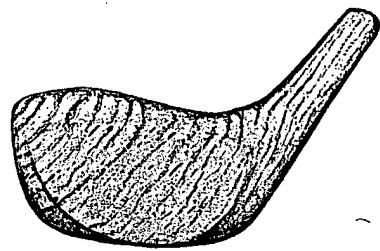
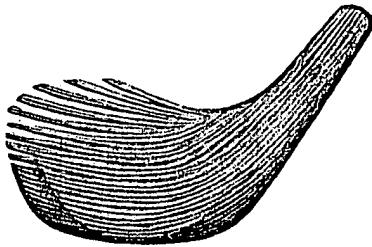
Irons were hand-forged from a bar of iron that was heated, shaped with a hammer, polished, and fitted with a socket for a hickory shaft, which was trimmed to fit and held in place by a rivet. Grips were fashioned from a layer of cloth covered by strips of untanned leather wound around the end of the shaft and tacked in place. Both ends of the grip were wrapped with twine that was then shellacked.

The production of irons advanced with "drop-forging" in

the 1890s. Instead of a man hammering out each iron head by hand on an anvil, a mechanical hammer stamped heated iron bars into shape faster and more uniformly. About this time, Scottish cleekmakers started stamping clubs with their names or marks; extra symbols sometimes were applied for the retailer or professional who would be selling the wares. Initials, arrows, crests, and other identifying marks were used. One of the most famous was the three-feathered plume of Forgan and Sons of St. Andrews, indicating that the family was clubmaker to the Prince of Wales. (When the prince became King Edward VII in 1901, Forgan's stamp changed to a crown.)

Gutta percha, a tree sap that was molded into balls, was black, so early balls were painted white. As the color wore off with use, golfers could buy special paint and make touch-ups themselves.





Above:

The two basic methods of wood-head construction are lamination (top) and solid-block persimmon (above). The lamination process was invented in the 1940s and involves building a block of wood by gluing together thin sheets of maple, then turning the head from the block on a lathe. Persimmon clubheads, turned from a single block of persimmon, have been popular since the late 1890s; they are not as durable as laminated heads but are preferred by many players for their feel and beauty.

Below:

Evolution of the golf ball. The feathery (far left), a small sack of leather stuffed with goose or chicken feathers, was played from the 1400s until the mid-1800s, when it was replaced by the one-piece, molded gutta percha (second from left). The three-piece Haskell ball (second from right), which appeared in 1898, revolutionized the game: A small rubber center wrapped with rubber windings and sheathed in a gutta-percha cover, the Haskell was the first ball to mix distance and control. Introduced in the late 1960s, the two-piece ball (far right), a solid mass inside a tough, synthetic cover, sacrificed control for distance but was an immediate success.

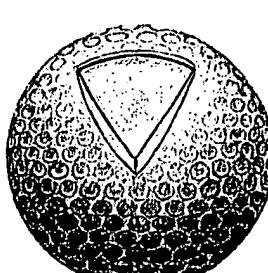
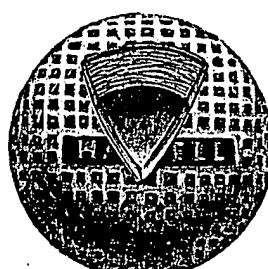
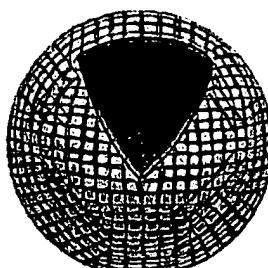
core with a small, rubber sac filled with water on the theory that the less resistance at impact, the better. In the years that followed, other companies tested sacs loaded with mixtures combining water with lead, zinc oxide, glue, glycerin, even tapioca. (Modern hollow-core balls mix water with salts for a little extra weight.)

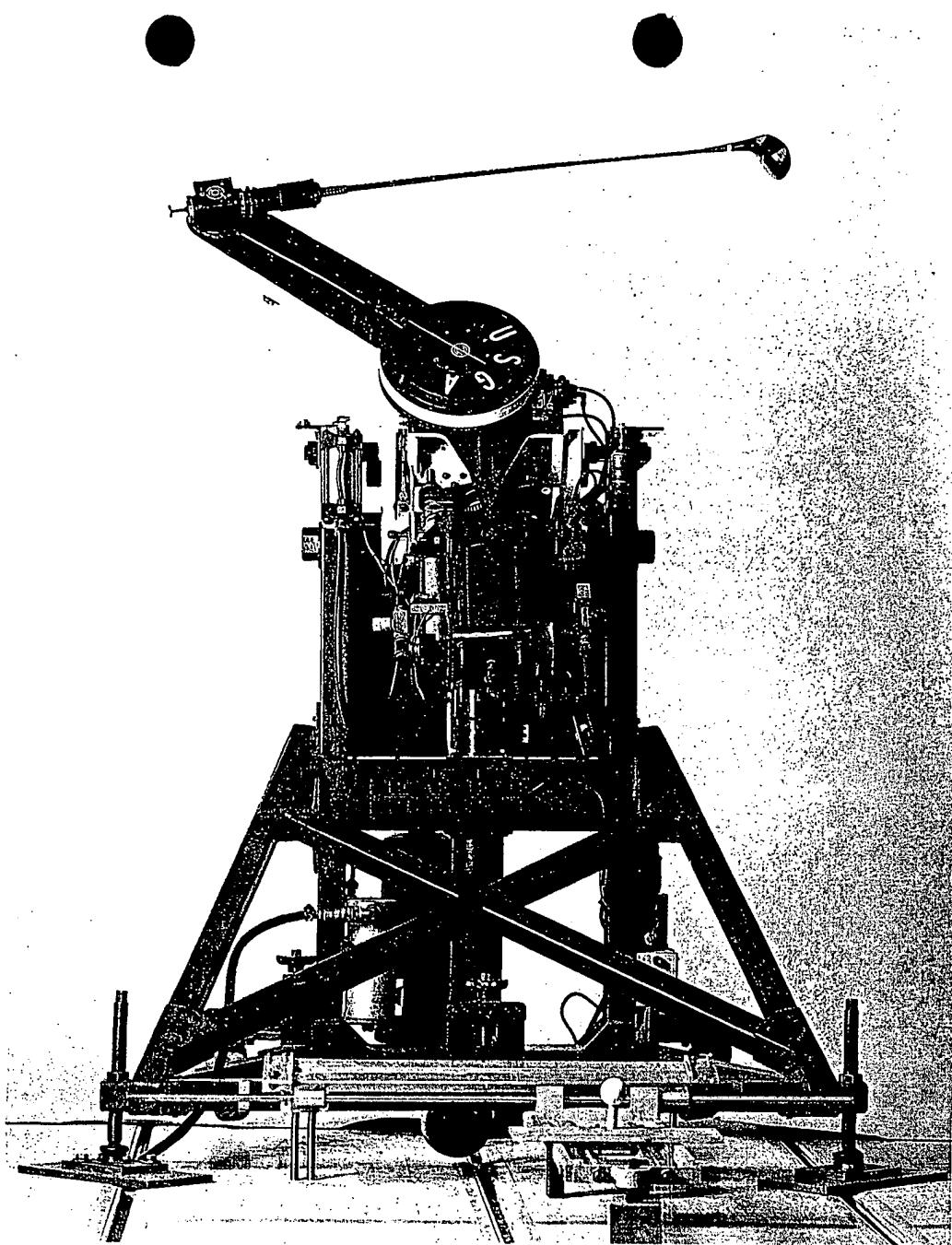
Another area open to improvement was cover design. While the bramble sold on the early Haskells, further study showed that indentations, rather than bumps, made for more consistent club-ball contact and flight. In 1905, Englishman William Taylor received a patent on a dimpled cover, a virtual reverse of the bramble. Spalding bought the American rights, and, by 1930, the dimple was king.

The original wound-rubber balls were light and large, about 1.55 ounces and 1.71 inches in diameter. No regulations governed ball size and weight, so manufacturers tried various combinations looking for the longest, straightest flight. A heavier core was popular for a time, then both size and weight dropped, so in 1915, when Haskell's original patent expired, 1.62 ounces and 1.63 inches in diameter were roughly standard.

Once the patent ended, competitors mushroomed. Just as development of the gutta-percha ball threatened courses, so did the wide variety of rubber balls suddenly available. In 1920, the United States Golf Association (USGA) and the Royal and Ancient (R&A) Golf Club of St. Andrews, Scotland, the two recognized governing bodies of golf, jointly agreed on ball-size restrictions. As of May 1, 1921, balls used in their competitions could no longer weigh more than 1.62 ounces or measure less than 1.62 inches.

Over the next decade, the USGA experimented with different limits. In 1923, the association stated that a ball could weigh no more than 1.55 ounces while measuring no less than 1.68 inches. This "balloon ball" came into play in the United States in 1931, but proved too light to hold a line while in flight or on the green; it was gone after one year. The new rules in 1932 read 1.62 ounces and 1.68 inches, standards that still apply today. The British held to the original





The finest golfer never to make a par, Iron Byron is the stalwart of the USGA's golf equipment testing facilities.

1.62/1.62 all along, but as America came to dominate the game, the smaller ball fell out of favor.

Ball size has not been the only concern of the ruling bodies. In 1942, the USGA, which had become the leader in matters of equipment, introduced the Initial Velocity Standard, which says a ball's velocity at impact cannot be greater than 250 feet per second (measured by USGA machines under laboratory conditions). In 1976, the Overall Distance Standard limited the distance a ball could travel to 280 yards

(plus 6 percent tolerance) when hit by the USGA's mechanical golfer, Iron Byron. And in 1983, the Symmetry Standard mandated that a ball "must fly the same distance, same height, and remain in flight for the same length of time no matter how the ball is placed on the tee."

In 1921, Scotsman Jock Hutchison, one of the leading British players in the years before World War I, won his country's Open using the deeply slotted irons that had become popular with the advent of the wound-rubber ball. In

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THIS MONTH'S
FEATURED ITEMS

Speed Bags

TKO Speed Bag Platform Kit

Speed, rhythm, and timing are great assets in a punching program. Develop fighting skills and develop muscle endurance in your shoulders and your arms, while exercising.



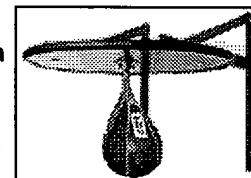
Kit Includes:

Black anodized finish
24" Wood Platform with training swivel
Mounting Brackets designed to fit all 16" wall beams
One pair of gloves
One Jump Rope
One 10'x7" vinyl speed bag
One pair hand wraps.

[Click here for more details](#)

Prime Fighter Speed Bag and Platform

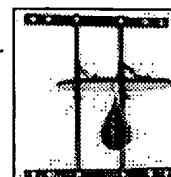
Steel mounting angles are welded together for less vibration and a better work out. A standard board 3/4 inch thick X 24"dia. with a protective rubber pad surrounding the outside diameter. Powder coated finish and comes with all hardware and a medium leather striking bag. You will practice more because the rhythm of this system is like that of a professional. You will improve your technique because it's a much better system than you can purchase anywhere under one hundred dollars.
Includes pro swivel



[Click here for more details](#)

Pro Speed Bag / Heavy Bag Adjustable Wall-mount System

This interchangeable system is designed so that you can use a speed bag or a heavy bag. Constructed of heavy Gauge powder coated steel. Extra dense 1" board with rubber pad surrounding the 24" outer diameter for improved ability. It's designed for a 24" height adjustment range with a lock pin and two lock knobs.

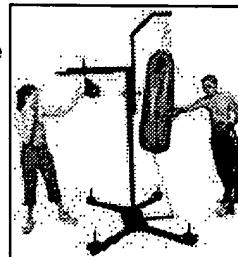


[Click here for more details](#)

Free Standing Home Unit

This unit is equipped with a superb stability and comes with four detachable barbell weight posts so you can place more weight if needed. Both speed bag and heavy bag is designed for adjustability to your desired height, no tools required. Heavy gauge constructed with a powder coated finish. Speed bag platform is 3/4' X 24" diameter comes with a pro swivel. Up to 8 ft of height adjustment for heavy bag installation.

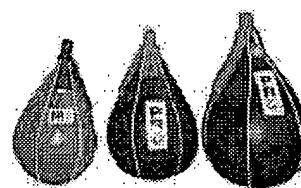
Speed bag includes Pro Swivel



[Click here for more details](#)

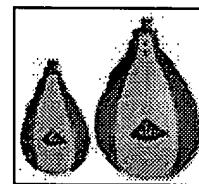
Pro Leather Speed Bags

These leather skin, professional inflatable bladder speed bags include a free inflating needle and are available in three sizes; Small, medium and large.



Century Leather Speed Bags

Color: Black/Tan



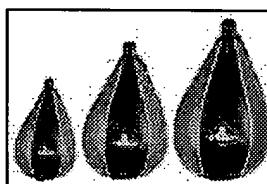
Small: 8"X 5"

Large: 10"X 7"

[Click here for more details](#)

Century Vinyl Speed Bags

Color: Red/Black



Small: 8"X 5"

Medium: 10"X 7"

Large: 13"X 8"

[Click here for more details](#)

NEW! TKO Desktop Speed Bag NEW!

The NEW Desktop Speed Bag is portable and fits on most desk tops. No tools or permanent mounting required.

The bag measures 10 inches by 8 inches and includes the following:



Speed Bag

6 Suction Cup Base for better stability

Heavy Duty Spring

5 Minute Instructional Video

Air Pump and Needle

[Click here for more details](#)

[VIEW CART / CHECKOUT](#)

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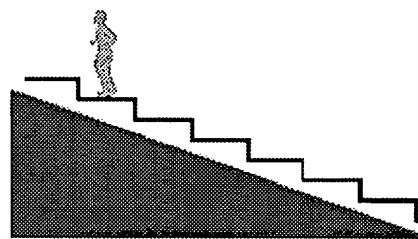
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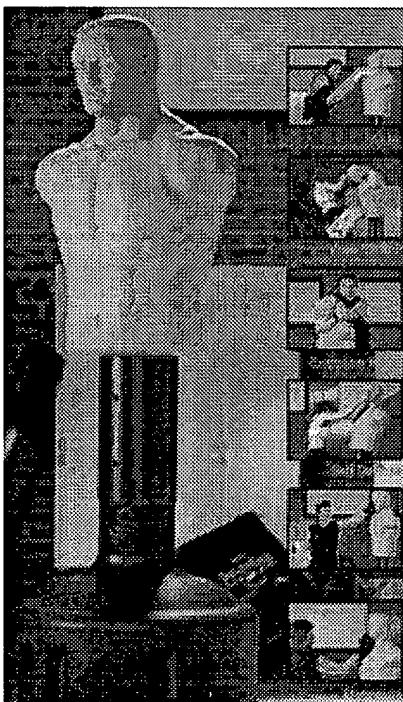
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Professional Equipment Experts



BOXING EQUIPMENT

*Call for your LOWEST Internet pricing! (919) 875-1900
"If we don't have what you need, we'll find it for you!!!"*



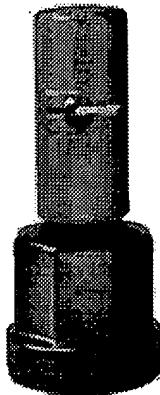
BOB
Body Opponent Bag
A Realistic Sparring Partner!
One year limited warranty.

*Extremely Fun!!
Get out your aggressions, without the pesky jail
time!!*

MSRP: \$299

Buy Him!!

BOB is a lifelike manikin that comes on a portable base. His skin is made of high strength plastisol and the inner cavities are filled with urethane foam. Height adjusts from 5'6" to 6'. Good for target training/sparring techniques. You can kick or punch BOB. (or strangle, or poke him in the eyes, or tickle his ribs, whatever you want!!)



WAVEMASTER
Best Selling Workout Bag of All Time!

MSRP: \$119.99

[Buy It!!](#)

No drilling holes in your ceilings or steadyng the bag after each kick. This free-standing bag has revolutionized the heavy bag industry enabling you to get an intense workout.

Four height adjustments from 52" to 70". Flexible polyethylene hollow base fills with sand or water and is rounded for easy roll away. Striking surface is high impact foam with durable vinyl cover. Approx. 270 lbs.

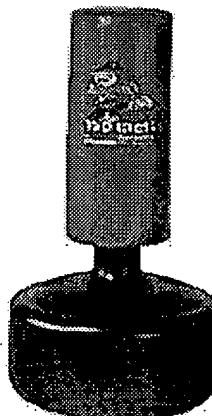


POWERLINE
WAVEMASTER BAGS
MSRP: \$159 [Buy It!!](#)

Commercial Workout Bag

Commercial Version of our top selling wavemaster bags. Thicker padding, heavier duty base. Four height adjustments from 52" to 70".

Fill with water or sand, strap some gloves on and have some heavy duty fun!!

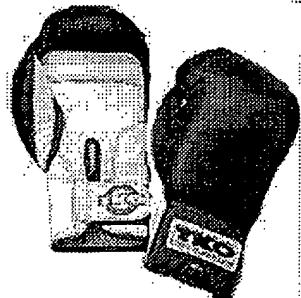


Kid Kick™ Portable Heavy Bag
The perfect workout partner for young martial artists!

MSRP: \$69.99

[Buy It!!](#)

Hollow base holds sand or water, keeping bag stationary. Rounded base makes it easy to roll and relocate. Durable vinyl covers high impact foam. Four height adjustments allow the bag to grow with the child. Approx 170 lbs. when filled.



BOXING GLOVES!!!!

You need 'em, we got 'em!!!

TKO and Everlast!! Speed bag, Heavy Bag, Sparring, 10 oz, 12 oz, just to name a few.

Call for Brands, types, sizes and prices. [Buy It!!](#)

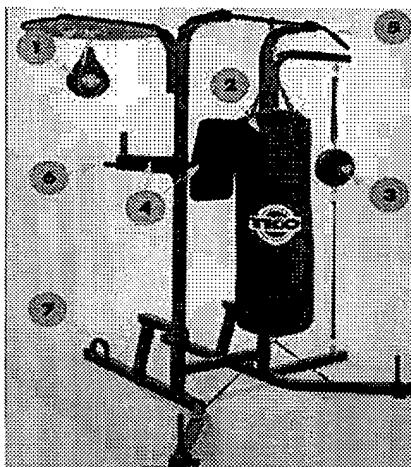


HARBINGER Wristwrap Gloves

MSRP: \$49.99

[Buy It!!](#)

Patented wristwrap design provides maximum wrist support. Durable top grain leather and comfortable lining. Cushioned center palm grip. Foam padded inserts at points of contact. M, L, XL.



TKO 7 STATION WORKOUT GYM

If you can't get a workout with this, you never will!!!

Pick and choose your options:

1. Speed bag Platform
2. Heavy Bag
3. Double End Punching Bag
4. Vertical Knee Raise
5. Pull-Up bar
6. Dip bars
7. Push-up Handles

The Heavy Bag stand with the Speedbag platform retails at \$199.

[Want to buy it?](#) The TKO 7-in-1 gym is \$399!!

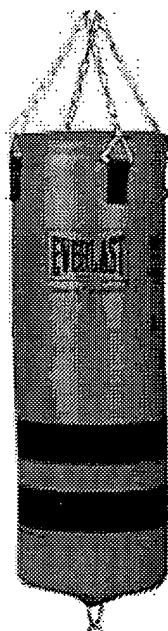


Everlast® 25-LBS. - Martial Arts Bag
Takes punishing hard-use workouts.

MSRP: \$41.95

[Buy It!!](#)

Black leather-grained NEVATEAR. Nylon sewn for extra durability. 4' plated hanging chain with S hooks. Includes installation instructions and "Health Training Guide".



Everlast® 60-LBS. - Double-End Martial Arts Heavy Bag
12" x 36"

MSRP: \$84.50 [Buy It!!](#)

NEVATEAR covering. Double sewn nylon seams. "Health & Training Guide".

Everlast® Striking Bags

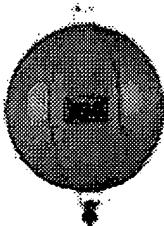


Professional Super Fast Sonic Speed Bag

9" x 6"

MSRP: \$46.95

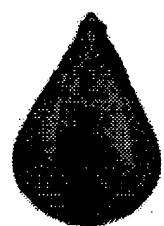
Used by World Champions for over 75 years. [Buy It!!](#)



Double-End Striking Bag

MSRP: \$49.95

Includes shock cord, Duralon rope with plated steel ceiling and floor attachments.

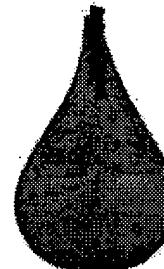


Budget Striking Bag

10" x 7"

MSRP: \$30.95 [Buy It!!](#)

Genuine Leather.



Budget Striking Bag

13" x 8"

MSRP: \$35

Genuine Leather. [Buy It!!](#)

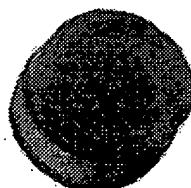


Everlast® Striking Bag Swivel

13" x 8"

MSRP: \$26

Precision ball bearing construction insures super speed, smooth action and accurate rebounds.



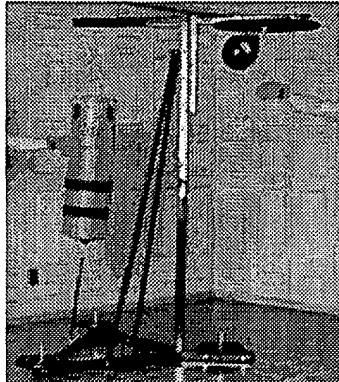
Everlast® Professional Hand Wrap

2" x 108"

MSRP: \$6

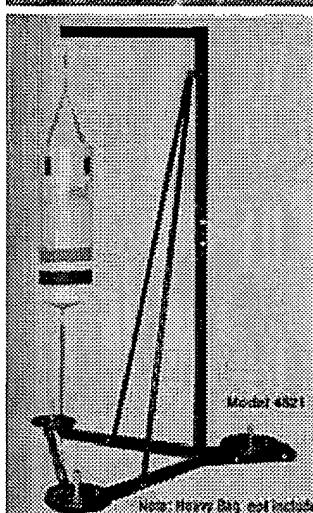
[Buy It!!](#)

100% cotton herringbone woven tape. Washable..



Everlast® Multi-Fitness Training Center
Free Standing!

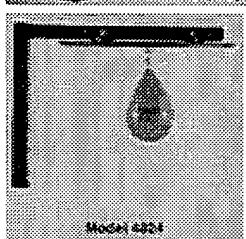
[Buy It!!](#)



Model 4821 Training Center without Platform Assembly.

75 lbs.

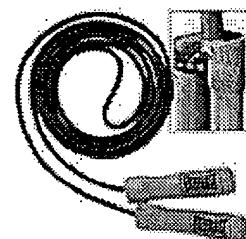
MSRP: \$199.99



Model 4824 Platform Assembly (Adj.) with speed bag and swivel.

32 lbs.

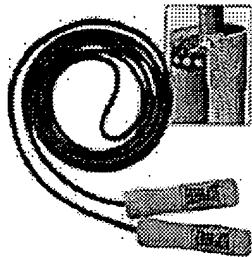
MSRP: \$99.99



Everlast® Heavy Handle Leather Skip Rope
The Fastest Skip Rope in the World!
MSRP: \$12

9.5', contoured and polished lead-weighted wood handles.

[Buy It!!](#)



Everlast® Ball Bearing Leather Skip Rope
Suited for use in any aerobic exercise program.
MSRP: \$9

9.5', smoothly polished and contoured wood handles.
[Buy It!!](#)

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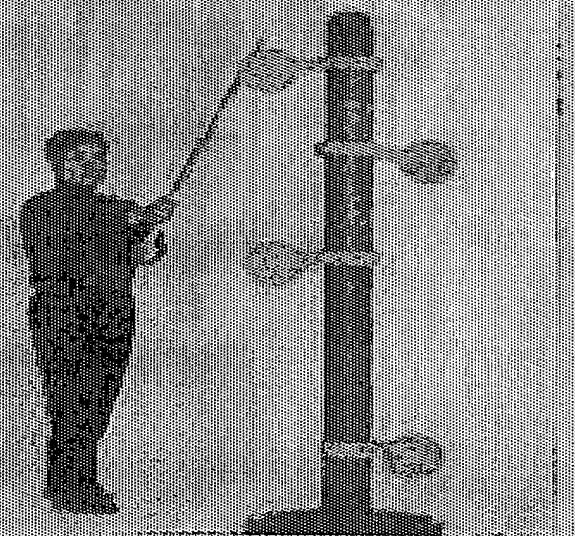
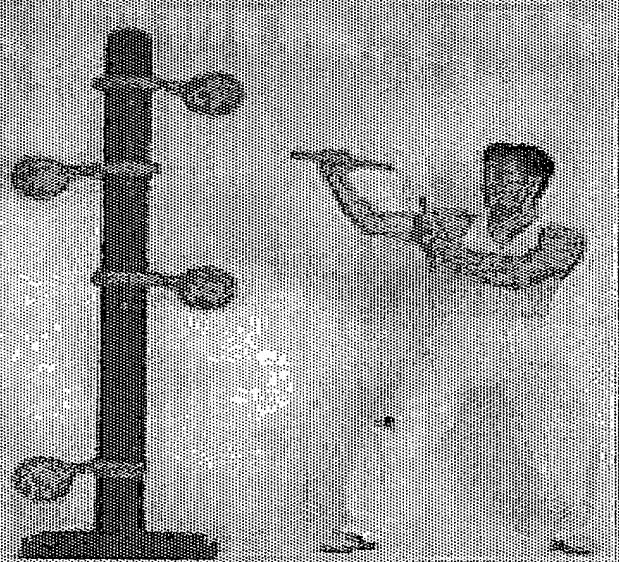
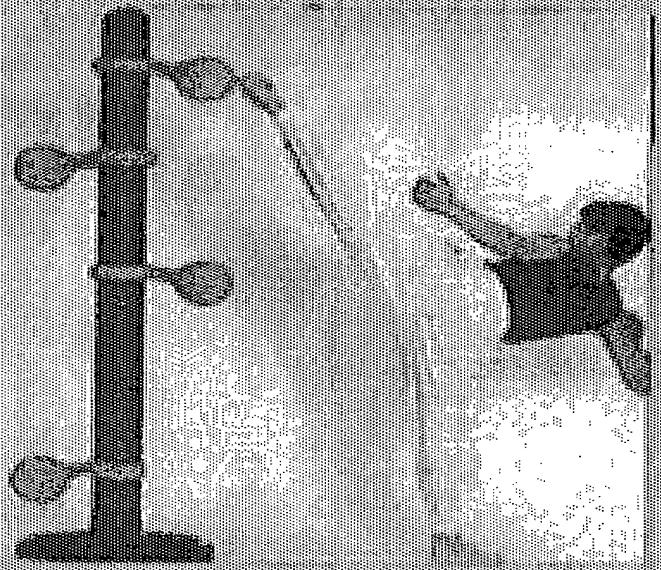
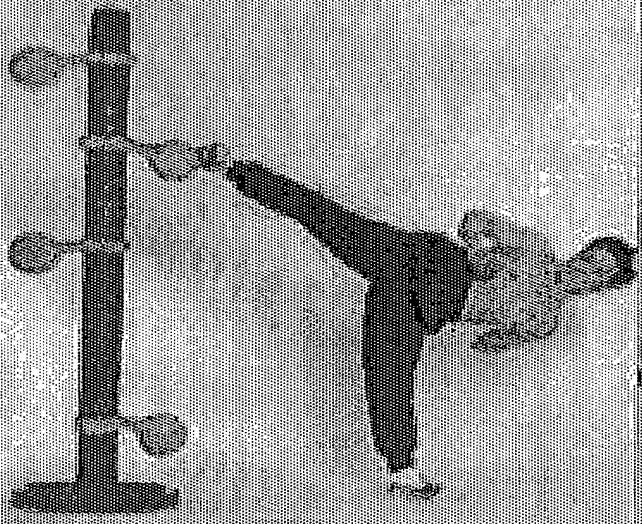
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S P E E D B A G

Air Filled Bags Fitted to Air Filled Post



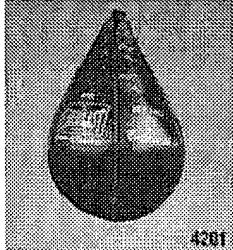


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Boxing

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Professional Super-Fast Speed Bags



Select top-grade glazed kidskin. Lightweight. Individually balanced. 100% nylon lining. Fully leather welted and leather bound. Shur-Lok leather laced closure. Reinforced triple-welted leather hanger.

4204 Astro Speed Bag, 8" x 5"List \$64.00
4200 Sonic Speed Bag, 9" x 6"List \$66.00
4201 Jet Speed Bag, 10" x 7"List \$70.00
4202 Super Speed Bag, 11" x 8"List \$74.00

Fitness and Exercise Heavy Bags

Special Features: Made with a specially blended filler for resilient shock absorbency. Hydraulically stuffed to plump fullness. All seams are double sewn and lock-stitched with nylon. Triple-reinforced "D" rings with plated uniwelded "D" rings. Complete set of welded and plated chains. "S" hooks plus swivel.

4603 30# Nevatear Bag - 14" x 30"List

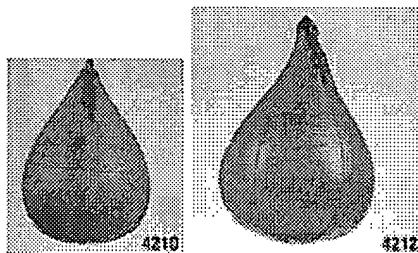


\$84.00
4604 40# Nevatear Bag - 14" x 30"List
\$92.00
4605 50# Nevatear Bag - 14" x 36"List
\$102.00
4606 60# Nevatear Bag - 14" x 36"List
\$112.00
4607 70# Nevatear Bag - 14" x 42"List
\$128.00
4608 80# Nevatear Bag - 14" x 42"List
\$138.00
4600 100# Nevatear Bag - 14" x 48"List
\$154.00
4631 40# Canvas Bag - 14" x 30"List
\$90.00
4632 70# Canvas Bag - 14" x 42"List
\$122.00
4633 100# Canvas Bag - 14" x 48"List
\$142.00
4646 50# Leather Bag - 14" x 36"List
\$250.00
4647 50# Leather Bag - 14" x 42"List
\$280.00
4648 100# Leather Bag - 14" x 48"List
\$310.00

*NOTE: Subject to leather market conditions, color may be Black or Brown.

Striking Bags

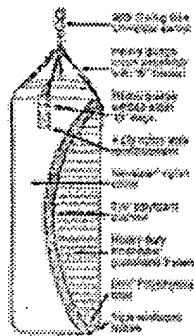
Finest top-grain horsehide leather, fully bound and fully lined, rawhide laced closure.



4210 Genuine Leather Speed Bag, 11" x 8"List \$46.00
4212 Genuine Leather Striking Bag, 14" x 9"List
\$56.00
4213 Military Speed Bag, 11" x 8"List
\$64.00
4207 Military Striking Bag, 14" x 9"List
\$76.00
4205 Leatherneck YMCA Bag, 13" x 10"List
\$86.00
4214 Budget Speed Bag, 10" x 7"List
\$42.00
4208 Budget Striking Bag, 13" x 8"List
\$48.00

Aqua Power Fitness Training Bags

Special features: Will always retain original shape.



Will not harden or soften.
Nevatear 100% tire-cord nylon. Available
double-end for martial arts. Inner
tube fully guaranteed for 3 years.

4730 70# Aqua Power Nevatear Bag - 14" x
42"List \$140.00
4732 100# Aqua Power Nevatear Bag - 14" x
48"List \$154.00
4734 70# Double-End Aqua Bag - 14" x
42"List \$154.00
4736 100# Double-End Aqua Bag - 14" x
48"List \$168.00
4738 Inner Tube for 70# Aqua
BagList \$40.00
4739 Inner Tube for 100# Aqua
BagList \$50.00



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